

between a point on the grooves and said axis of pivoting of said lever increases as said lever pivots from said open to said closed position to displace said cartridge toward said carriage to said cartridge's mounted position [resilient member is not flexed when said ink cartridge is securely mounted in said carriage].

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Amended*
¹⁶₄₀. (Amended) The ink jet printer as claimed in claim ¹⁵~~36~~, wherein said resilient portions have a hole that engages said convex portions of said ink cartridge when said ink cartridge is in said cartridge's mounted position [38, wherein each of said first and second arms includes a cam groove facilitating the mounting and demounting of the ink cartridge in said carriage].

DISCUSSION

This Amendment is submitted prior to examination of the current application to address the outstanding Office Action in the parent application and to draw the Examiner's attention to newly discovered prior art submitted in the accompanying Information Disclosure Statement. Consideration of the claims in view of the amendments submitted herein and the following remarks is respectfully requested.

The Examiner is requested to examine U.S. Patent No. 5,579,039, issued to Kurata et al. Kurata generally teaches an ink jet printer having an ink cartridge mounted on a head, which in turn is mounted on a carriage, a lever provided for mounting and demounting the ink cartridge, and a stopper positioned to stop movement of the carriage

when the mounting of the ink cartridge is not complete.

Kurata, however, employs a relatively complex system of preventing a user from mounting the ink cartridge in the print area to avoid damage to the head or the scattering of ink in the area of the recording material. See, e.g., Kurata 7:46-8:23. Kurata employs a spring-loaded locking pawl (24) to prevent the lever (22) from rotating to permit demounting or mounting of the cartridge when the head (2) is in the print area. When the carriage (1) is in position A depicted in Figure 1 of Kurata, the pawl (24) is rotated by guide (27) thereby allowing lever (22) to be rotated to mount and demount a cartridge. See Kurata 6:55-7:15. Carriage locking portion (29) prevents the carriage from being moved from position A if lever (22) is not fully rotated.

Applicants have amended claims 29, 30 and 32 to overcome the Kurata reference, and to clarify the subject matter of the claims. As background to the amendments, claim 29 claims a carriage, a head, an ink cartridge, a lever, and a lip positioned to prevent the lever from mounting or demounting the ink cartridge when the carriage is positioned within a print area, while permitting the mounting or demounting of the ink cartridge when the carriage is positioned within a nonprint area. Claim 30 further defines the lip as extending substantially along the length of the print area and having a gap corresponding to the nonprint area, the gap permitting the mounting or demounting of the ink cartridge. Claim 32 further defines the lip as being integrally mounted to the

printer case.

Thus, as is explained in pages 39-40 of the Specification and FIGS. 43 and 44, Applicants eliminate the need for the locking pawl and its associated components and the carriage locking portion disclosed in Kurata by combining the functions of each in one component—lip 13c. Lip 13c is positioned in such a way as to prevent lever 80 from being rotated to demount the ink cartridge when the ink cartridge 90 is in the print area. See FIGS. 43 and 46. Lip 13c also performs the function of a stopper. In the event that the cartridge is not properly loaded in the head, lever 80 will not be fully rotated, and will contact the stopper 13d of lip 13c. See FIG. 45.

The most significant benefit provided by such an arrangement is its simple construction. In the instant arrangement, there are fewer interacting parts than in the Kurata construction, and therefore the instant arrangement is less expensive to manufacture, requires less maintenance, and is more reliable. Furthermore, because Kurata relies upon the interrelationship of cams, pawls, and spring-loaded stoppers to operate, there are tight tolerances between the operating pieces such as pawl (24) and guide (27), which make assembly more difficult. As a result, when the pieces wear, the Kurata arrangement will perform less reliably and with less accuracy. Nothing in Kurata teaches or suggests the arrangement of the current application. Accordingly, Applicants submit that claims 29, 30, and 32, as amended, are in condition for allowance.

Claims 33, and 36-40 have been amended to further define the invention and to clarify the subject matter of the claims. Claim 33 claims a carriage which moves along a print area; a head mounted on the carriage; a U-shaped lever comprising first and second arms and a tab joining a first end of each arm, the lever being pivotably mounted on the carriage at a second end of at least one of said arms for pivoting about an axis extending between the second ends of the arms; an ink cartridge mounted on the carriage at least in part by the lever; and at least one of the arms including a resilient portion for engagement by the ink cartridge to support the ink cartridge in the ink cartridge on the carriage in a direction of movement of the carriage. Claims 36-40 further define the construction of the ink cartridge mounting system of the current invention. These claims are fully described in the Specification at pages 37-39, and depicted FIGS. 38-41.

This construction offers the benefit of reducing vibration and noise when the carriage is moving during printing as the resilient portion dampens vibration. See Specification page 40, lines 27-36. Furthermore, this construction permits the user to easily confirm that a complete fitting state between the ink cartridge and the ink jet head has been obtained as the resilient portion mates with a corresponding convex portion of the lever. See Specification page 38, lines 35-38.

Applicants submit that Kurata does not teach or suggest the construction recited in claims 33, and 36-40. Kurata does not teach or suggest at least one lever arm

having a "resilient portion for engagement by the ink cartridge to support the ink cartridge in the ink cartridge on the carriage in a direction of movement of the carriage". Nor does it teach the refinements of claim 33 claimed in claims 36-40. Accordingly, Applicants submit that claims 33, and 36-40, as amended, are in condition for allowance.

The Examiner is requested to enter these Amendments in the file. If, after consideration of the claims, any questions remain outstanding, the Examiner is respectfully requested to contact the undersigned counsel for the purpose of resolving any outstanding issues.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Lawrence Rosenthal", followed by the number "32,138".

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